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Lipoprotein-Associated Phospholipase A2 as an Independent Predictor of Coronary Heart Disease

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ABSTRACT

Background Chronic inflammation is believed to increase the risk of coronary events by making atherosclerotic plaques in coronary vessels prone to rupture. We examined blood constituents potentially affected by inflammation as predictors of risk in men with hypercholesterolemia who were enrolled in the West of Scotland Coronary Prevention Study, a trial that evaluated the value of pravastatin in the prevention of coronary events.

Methods A total of 580 men who had had a coronary event (nonfatal myocardial infarction, death from coronary heart disease, or a revascularization procedure) were each matched for age and smoking status with 2 control subjects (total, 1160) from the same cohort who had not had a coronary event. Lipoprotein-associated phospholipase A_2, C-reactive protein, and fibrinogen levels and the white-cell count were measured at base line, along with other traditional risk factors. The association of these variables with the risk of coronary events was tested in regression models and by dividing the range of values according to

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Results Levels of C-reactive protein, the white-cell count, and fibrinogen levels were strong predictors of the risk of coronary events; the risk in the highest quintile of the study cohort for each variable was approximately twice that in the lowest quintile. However, the association of these variables with risk was markedly attenuated when age, systolic blood pressure, and lipoprotein levels were included in multivariate models. Levels of lipoprotein-associated phospholipase A_2 (platelet-activating factor acetylhydrolase), the expression of which is regulated by mediators of inflammation, had a strong, positive association with risk that was not confounded by other factors. It was associated with almost a doubling of the risk in the highest quintile as compared with the lowest quintile.

Conclusions Inflammatory markers are predictors of the risk of coronary events, but their predictive ability is attenuated by associations with other coronary risk factors. Elevated levels of lipoprotein-associated phospholipase A_2 appear to be a strong risk factor for coronary heart disease, a finding that has implications for atherogenesis and the assessment of risk.

Source Information

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